

SC12515ZP

CLAIMS

1. A method of forming a bond pad, the method comprising:
providing semiconductor substrate;
- 5 forming a bond pad layer over the semiconductor substrate;
forming a protection layer over the bond pad layer; and
removing a portion of the protection layer using an etch chemistry comprising hydrogen peroxide and an amine.
- 10 2. The method of claim 1 wherein the amine is ammonium hydroxide.
3. The method of claim 2, wherein the etch chemistry consists of hydrogen peroxide and ammonium hydroxide.
- 15 4. The method of claim 1, wherein the ratio of the hydrogen peroxide to amine is between 20:1 and 100:1.
5. The method of claim 1, wherein forming a protection layer further comprises forming a protection layer comprising titanium and nitrogen.
- 20 6. The method of claim 1, wherein forming a bond pad layer further comprises forming a bond pad layer comprising aluminum.
7. The method of claim 1, further comprising:
- 25 forming a polyimide layer over the protection layer; and
 patterning the polyimide layer to form an opening; and
 wherein:
 removing the portion of the protective layer is performed after patterning the polyimide layer and the removing is selective to the bond pad layer and the polyimide layer.
- 30

SC12515ZP

8. A method of forming a bond pad, the method comprising:
providing semiconductor substrate;

forming a bond pad layer over the semiconductor substrate;

forming a protection layer over the bond pad layer; and

5 removing a portion of the protection layer using an etch chemistry comprising of hydrogen, oxygen and nitrogen.

9. The method of claim 8, wherein the etch chemistry comprises hydrogen peroxide and an amine.

10

10. The method of claim 9, wherein the ratio of the hydrogen peroxide to amine is between 20:1 and 100:1.

15

11. The method of claim 10, wherein forming the protection layer further comprises forming a protection layer comprising titanium and nitrogen.

12. The method of claim 11, wherein forming the protection layer further comprises forming a titanium nitride protection layer.

20 13. The method of claim 10, wherein forming a bond pad layer further comprises forming a bond pad layer comprising aluminum.

14. The method of claim 8, further comprising:

forming a polyimide layer over the protection layer; and

25 patterning the polyimide layer to form an opening; and
wherein:

removing the portion of the protective layer is performed by selectively removing the portion of the protective layer so not to remove substantial portions of the bond pad layer and the polyimide layer.

30

SC12515ZP

15. A method of forming a bond pad, the method comprising:
providing a semiconductor substrate;
forming a bond pad layer over the semiconductor substrate;
forming a protective layer over the bond pad layer;
5 patterning the bond pad layer and the protective layer to form a stack;
forming a passivation layer over the semiconductor substrate;
patterning the passivation layer to form a first opening over a portion of the stack;
forming a polyimide layer over the semiconductor substrate and along the bottom and
sidewalls of the first opening after patterning the passivation layer;
10 patterning the polyimide layer to form a second opening over the stack, wherein the second
opening is concentric with the first opening and the second opening exposes a portion
of the protective layer;
selectively removing the exposed portion of the protective layer from the second opening by
using a chemistry comprising hydrogen, oxygen, and nitrogen.
- 15
16. The method of claim 15, wherein the etch chemistry comprises hydrogen peroxide and
an amine.
17. The method of claim 16, wherein the ratio of the hydrogen peroxide to amine is between
20 20:1 and 100:1.
18. The method of claim 15, wherein forming a protection layer further comprises forming a
protection layer comprising titanium and nitrogen.
- 25 19. The method of claim 18, wherein forming the protection layer further comprises forming
a titanium nitride protection layer.
20. The method of claim 15, wherein forming a bond pad layer further comprises forming a
bond pad layer comprising aluminum.

30

-10-

BEST AVAILABLE COPY